Name:

at1119paper: Complete the Square, b = odd (v518)

Example

By completing the square, find both solutions to the given equation:

$$x^2 - 59x = -814$$

Add $\left(\frac{-59}{2}\right)^2$, which equals $\frac{3481}{4}$, to both sides of the equation.

$$x^2 - 59x + \frac{3481}{4} = \frac{225}{4}$$

Factor the left side.

$$\left(x + \frac{-59}{2}\right)^2 = \frac{225}{4}$$

Undo the squaring.

$$x + \frac{-59}{2} = \frac{-15}{2} \quad \text{or} \quad x + \frac{-59}{2} = \frac{15}{2}$$

$$x = \frac{59 - 15}{2} \quad \text{or} \quad x = \frac{59 + 15}{2}$$

$$x = 22 \quad \text{or} \quad x = 37$$

Question 1

By completing the square, find both solutions to the given equation:

$$x^2 + 57x = 1638$$

Question 2

By completing the square, find both solutions to the given equation:

$$x^2 - 13x \;=\; 264$$

Question 3

By completing the square, find both solutions to the given equation:

$$x^2 - 37x \;=\; -300$$